

DYS 2002/C002 USA

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No: 10/627,827  
Filed: July 24, 2003  
Title: NON-AZO DISPERSE DYE MIXTURES

Art Unit: 1712  
Examiner: Einsmann

Hon. Commissioner of Patents & Trademarks  
Washington, D. C. 20 231

DECLARATION (Rule 132)

Sir:

I, Ono, Shinsuke from Eppstein, declare: I am a chemical engineer, and a citizen of Japan, residing at Waldallee 7, Appartement 2, Eppstein, Federal Republic of Germany.

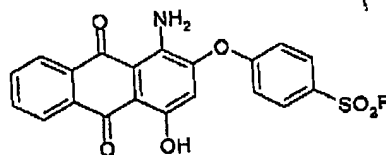
Since completing my studies at Kanazawa University in Japan and having taken my bachelor's degree in 2003, I have been employed as a dyeing application engineer by Hoechst Japan Limited, DyStar Japan Limited afterwards and DyStar Textilfarben GmbH & Co. Deutschland KG at the present. I have had adequate professional experience in the field to which patent application Serial No. 10/627,827, filed July 24, 2003, pertains and which was filed by David Brierley, Alan Leaver, Nigel Hall and Alan Cunningham.

I further declare:

In order to demonstrate that the dye mixtures according to the present application are not obvious over the teachings of WO 95/21958 in view of WO 97/04031 the tests described below have been carried out under my personal guidance and supervision.

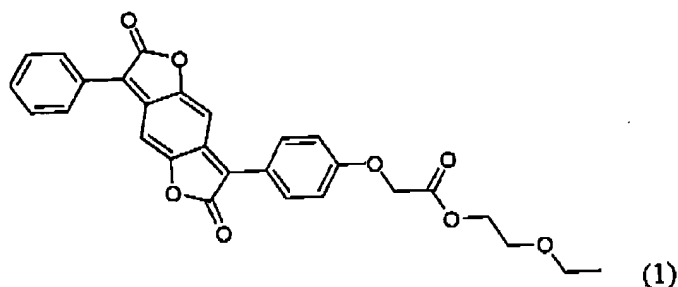
**I. DYESTUFFS AND DYESTUFF MIXTURES**

A. Dyestuff A according to formula (A)

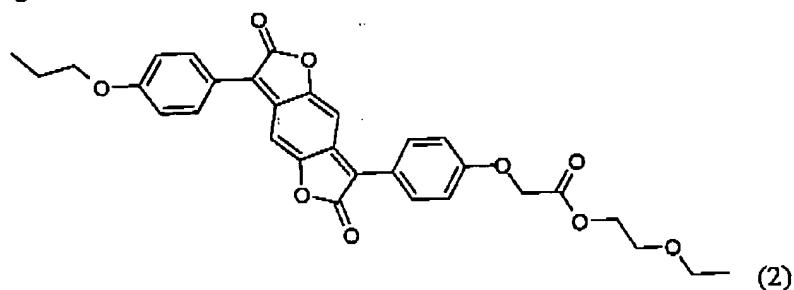


according to example 1 of WO 95/32958 (prior art)

B. Dyestuff Mixture B comprising 33% by weight of the dyestuff of formula (1)



and 67% by weight of the dyestuff of formula (2)



according to example 2 of WO 97/04031 (prior art)

C. Dyestuff Mixture C comprising

- 25% by weight of Dyestuff A above
- 75% by weight of Dyestuff Mixture B above

according to the present invention.

## II. PRODUCING OF THE DYEINGS

Dyeings of each of Dyestuff A and Dyestuff Mixtures A and B were produced using a conventional exhaustion process as follows:

Substrate: 5,0 g of Polyester double pique (Toray)  
 Liquor ratio: 1:12  
 pH: 4,5 (acetic acid /sodium acetate)  
 Levelling agent: 0,83g/l Levegal DLP (supplier BASF)  
 Dispersing agent: 0,83g/l Avolan IS (supplier BASF)  
 Temp. x Time: 130°C x 60 min. (90 -- 130°C: 1,5°C/min.)  
 Aftertreatment: Reduction clear

## III. DETERMINATION OF THE BUILD UP PROPERTIES

The color depths of the dyeings obtained according to II above were determined by measuring their remission in the visible range of from 400 to 700 nm and determining their overall remission, INTEG value, which is based on K/S value (Kubelka-Munk function) and described below.

$$\text{INTEG value} = \sum_{\lambda=400}^{\lambda=700} I_{\lambda} \cdot K/S_{\lambda} \cdot (x_{\lambda} + y_{\lambda} + z_{\lambda})$$

$I_{\lambda}$  : the spectral energy distribution of Illuminant

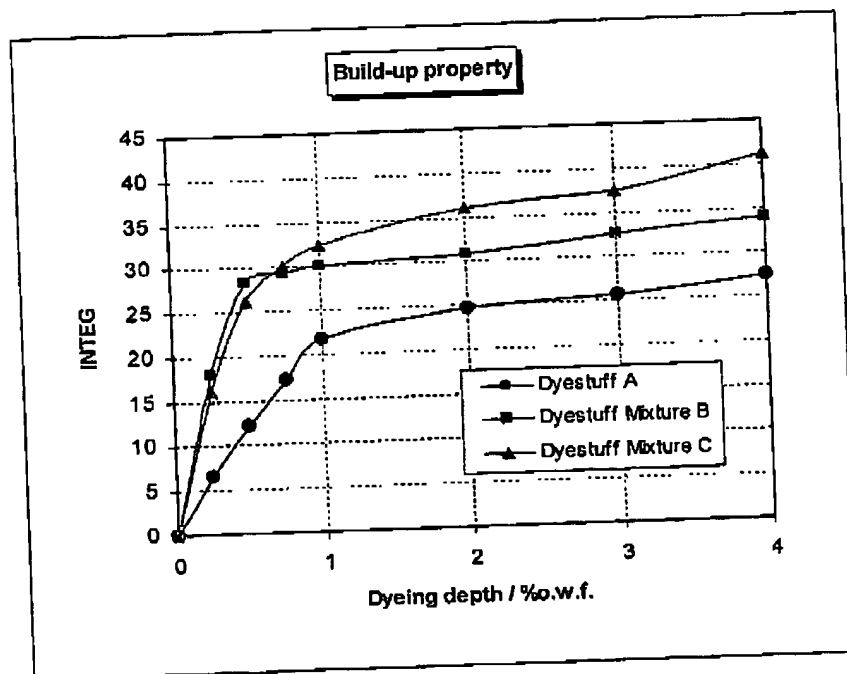
$x_{\lambda}, y_{\lambda}, z_{\lambda}$  : the color-matching functions

The following results were obtained:

INTEG values:

% o.w.f.	Dyestuff A (Prior art)	Dyestuff Mixture B (Prior art)	Dyestuff Mixture C (Invention)
0	0	0	0
0.25	6.54	18.13	16.12
0.5	12.25	28.3	26.28
0.75	17.28	29.34	29.98
1	21.63	30.04	32.42
2	24.71	30.92	36.15
3	25.66	32.56	37.49
4	27.33	33.86	41.07

Build-up properties



#### IV. RESULTS

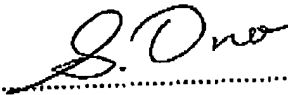
The results obtained clearly show strongly improved build-up properties of inventive Dyestuff Mixture C when compared to Dyestuff A and Dyestuff Mixture B, both according to prior art.

This improvement could not at all be foreseen for a person skilled in the art and was thus unexpected and surprising. No hint can be found in the prior art for this improved build up behavior of the inventive mixture.

I further declare that I understand the contents of this Declaration, that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed at Frankfurt

This 29<sup>th</sup> day of November 2005



(Shinsuke Ono)